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EXAMINER

FIGUEROA, JOHN J

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/526,917	Applicant(s) FUKUDA ET AL.	
	Examiner JOHN J. FIGUEROA	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The 35 U.S.C. 102(b) rejection of claims 1-6 as anticipated by United States Patent Number (USPN) 6,028,147 to Ogawa et al. (hereinafter 'Ogawa'147'), previously made of record in item 2 on page 2 of the Office Action dated January 10, 2008 (hereinafter 'OA'), has been withdrawn in view of Applicant's amendment to sole independent claim 1 in the response to OA filed May 12, 2008 (hereinafter 'Response').

Claim Rejections - 35 USC § 102

2. **The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.**

3. Claims 1, 3 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 5,360,859 to Ogawa et al., hereinafter 'Ogawa'859'.

Applicant has amended sole independent claim 1 by limiting the particle size of the double salt to be 10 micrometers or less. Moreover, claim 1 has further been amended to recite "the polymer being *obtainable* by polymerizing ... monomers with an initiator in the presence of a Lewis acid catalyst". [Emphasis added] This is a product-by-process limitation. A product by process claim limitation is not limited to the manipulations of a recited step, only the structure implied by the steps. "[E]ven though product-by-process claims are limited by and defined by the process, determination of

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patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) See, MPEP 2113:

Ogawa’859 discloses a lithium aluminum complex hydroxide salt (LAHS) as an excellent heat stabilizer for chlorine-containing olefin-polymers in resin compositions, wherein the stabilizer is present in about 0.01 to 10 parts by weight, per 100 parts by weight of the chlorine-containing olefin-type polymer. (Abstract; col. 1, line 60 to col. 2, line 12; col. 3, lines 30-57)

Ogawa’859 also discloses that among suitable olefin-type chlorine-type polymers for the composition are PVC, vinyl chloride copolymers, vinyl chloride-butadiene copolymers and polyolefins such as polybutylene and poly-3-methylbutylene. (Col. 5, lines 25-49) The LAHS has a particle size of generally 5 micrometers or less. (Col. 4, lines 12-14)

Ogawa’859 further discloses the use of other hydrotalcite salts (complex hydroxide carbonate salts of magnesium and aluminum) as excellent thermal stabilizers which are transparent when incorporated into chlorine-containing olefin polymers. (Col. 2, line 60 to col. 3, line 18) In Table 1 on col. 11-12 Ogawa depicts experimental results comparing LAHS/chlorine-containing olefin polymer compositions with conventional hydrotalcite/ chlorine-containing olefin polymer compositions, wherein the average

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particle size of both salts are less than 10 μm and the chlorine-containing olefin resin is a vinyl chloride resin. (Col. 8, line 27 to col. 10, line 17)

Accordingly, the instant claims are anticipated by Ogawa'859.

4. Claims 1, 3 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by PCT application publication WO 2000/05304 A1 to Papazoglou et al., hereinafter 'Papazoglou'.

Papazoglou discloses a method for reducing odor formed when processing at elevated temperatures a thermoplastic polymer composition that comprises an olefin-type thermoplastic polymer; a flame retardant; a metallocene elastomer; and hydrotalcite, wherein the hydrotalcite is added to effectively reduce odor. (Abstract; page 2, line 30 to page 3, line 2) The thermoplastic polymer can be a polyolefin, PET, polybutylene terephthalate or polyvinyl chloride, wherein the polyolefin can be derived from isobutylene. (Page 5, line 9 to page 10, line 5) The composition can comprise 0.001-5 parts by weight of hydrotalcite (Mg/Al hydroxy carbonate salt) having an average particle size of 1-10 microns. (Page 6, line 25 to page 7, line 13)

Thus, the instant claims are anticipated by Papazoglou.

5. Claims 1, 3 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by either USPN 4,299,759 to Miyata et al. (hereinafter 'Miyata'759') or by USPN 5,141,980 to Ranceze et al. (hereinafter 'Ranceze').

Miyata'759 discloses a method for inhibiting thermal or UV degradation of a thermoplastic resin containing halogen comprising mixing said thermoplastic resin with about 0.01 to about 5 parts by weight, per 100 parts by weight of said resin, of a

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hydrotalcite; wherein the thermoplastic resin contains halogens attributed to catalysts, monomers and/or post-halogenation; and wherein the resin composition is stabilized against thermal or ultraviolet degradation. (Abstract; col. 1, lines 9-40)

Miyata'759 discloses that suitable thermoplastic resins are those prepared by using catalysts containing halogens as, for example, vinyl chloride polymers or copolymers; polymer blends containing vinyl chloride resins and chlorine-containing rubbers, such as chlorinated polyvinyl chloride or chlorinated isobutylene rubber; and halogen-containing thermoplastic resins such as post-chlorinated vinyl chloride polymer, copolymers or blends thereof. (Col. 4, line 55 to col. 5, line 14). The hydrotalcite has a particle size of ten micrometers or less and is preferably 5 μm or less. (Col. 3, lines 44-50; col. 4, lines 1-20)

Similarly, Ranceze discloses stabilizing a thermoplastic resin containing halogens against the effects of heat and/or light by adding to the resin a ternary composition comprising hydrotalcite, a zinc zeolite and a zinc carboxylate. (Abstract; col. 1, lines 9-37) Ranceze discloses suitable hydrotalcites are those mentioned in Miyata'759 and incorporates this subject matter in Miyata'759 by reference. (Col. 1, lines 38-67)

Ranceze further discloses suitable thermoplastic resins containing halogens are those wherein the halogen is contributed by catalysts, monomers or post-halogenation, as e.g., olefin resins containing halogens originating from the polymerization catalysts and/or post-halogenation; vinyl chloride polymers or copolymers; chlorinated

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isobutylene rubber; post-chlorinated vinyl chloride polymers; and mixtures thereof. (Col. 3, lines 5-44) The hydrotalcite is employed in quantities of approximately 60 to 80% of the ternary system that, in turn, is present in about 0.2 to 10% by weight of the resin composition. The preferable particle size for the hydrotalcite is disclosed to be less than 5 microns. (Col. 1, lines 59-61; claim 5)

Thus, the instant claims are anticipated by Miyata'759 or Ranceze.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C.103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa'147 in view of Miyata'759 or USPN 4,729,854 to Miyata et al, hereinafter 'Miyata'854'.

Ogawa'147 was discussed in item 2 on page 2 of OA and all the grounds of rejection therein are incorporated herein in their entirety.

Ogawa'147 is silent as to the particle size of the hydrotalcite double salt.

Miyata'759 was discussed above. Miyata'759 further teaches that the hydrotalcites used should have a specific surface area of not more than 30 m²/g and a particle size of less than 5 microns. (Col. 4, lines 1-11) Miyata teaches that these

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hydrotalcites have a fully grown crystallite size, a low crystal strain, and a much reduced tendency to aggregation (enhanced dispersibility). (Col. 4, lines 4-8) Consequently, Miyata'759 discourages the use of hydrotalcites having particle sizes greater than 10 microns. (Col. 4, lines 16-21)

By the same token, Miyata'854 teaches modifying halogen-containing resin compositions by adding a small amount of hydrotalcite to resolve problems inherent in halogen-containing compositions, wherein the hydrotalcite has a specific surface area not exceeding about $30 \text{ m}^2/\text{g}$ and a particle size of about 1 to 10 microns. (Abstract; col. 1, lines 6-28; col. 2, lines 5-17; col. 3, lines 1-20 and 35-39) These hydrotalcites excel in their dispersibility in the resin composition thereby reducing risk of degrading the moldability of the resin composition and providing resistance to discoloration of the resin when reaction with, e.g., an antioxidant. (Col. 2, lines 31-59)

Miyata'854 further teaches that the hydrotalcite structure neutralizes hydrogen halides and that its anions take halogen into its structure as a result of an ion-exchange reaction with the consequence that the halogens trapped inside the hydrotalcite are rendered substantially insoluble in both water and organic solvents, thereby stabilizing these compositions up to about 400°C (Col. 2, lines 18-30; col. 3, lines 55-69)

Therefore, it would have been obvious to a person of ordinary skill in the art at the time that the claimed invention was made to select a particle size of less than ten micrometers for the hydrotalcite component of Ogawa'147's isobutylene/chlorine resin composition. It would have been obvious to one skilled in the art to incorporate a hydrotalcite having a particle size of less than ten micrometers, and thereby enhanced

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dispersibility, to attain a resultant composition that has enhanced moldability properties, increased resistance to discoloration and is thermally stable at higher temperatures as taught by Miyata'759 or Miyata'854.

Thus, the claims are unpatentable over Ogawa'147 and either Miyata'759 or Miyata'854.

Response to Arguments

The 35 U.S.C. 102 Rejection over Ogawa'147 (item 2 of OA)

8. Applicant's arguments filed regarding the captioned 102 rejection of claims 1-6 as anticipated by Ogawa'147 have been considered but deemed moot due to its withdrawal in view of Applicant's amendment to the claims limiting the particle size of the double salt component of the claimed composition to be less than ten micrometers.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN J. FIGUEROA whose telephone number is (571)272-8916. The examiner can normally be reached on Monday-Thursday 8:00-6:00pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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JJF/RPG

/Randy Gulakowski/
Supervisory Patent Examiner, Art Unit 1796